

### REMARKS

Applicant has carefully reviewed and considered the Office Action mailed on September 23, 2004, and the references cited therewith.

Claims 5, 7, 30, 32, 33, and 39 are amended, Claims 1-4, 10-13, 26-29, 31, and 35-38 are canceled, and no claims are added; as a result, Claims 5-9, 14-25, 30, 32-34, and 39-42 are now pending in this application.

### Election/Restrictions

Restriction to one of the following claims was required under 35 U.S.C. §121:

- I. Claims 5-9, 14-25, drawn to device and method for detecting wear in a liner using thermocouple, classified in class 374, subclass 179.
- II. Claims 1-4, 10-13, drawn to method for detecting wear in a liner using resistance, classified in class 374, subclass 57.
- III. Claims 26-42, drawn to liner, classified in class 285, subclass 47+.

In support for the restriction requirement the Examiner alleges the following:

2. Inventions II and I are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP §806.04, MPEP §808.01). In the instant case the different inventions, Invention I is directed to using a thermocouple to determine temperature to estimate wear, while Invention II does not require to measure temperature.

3. Inventions II and I are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP §806.04, MPEP §808.01). In the instant case the different inventions, Invention I is directed to using a thermocouple to determine temperature to estimate wear, while Invention III is directed to a liner not to an apparatus for detecting wear in a liner. Invention III can be used with another method and Invention I can be used with another apparatus.

4. Inventions III and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP §806.04, MPEP §808.01). In the instant case the different inventions, Invention II is directed to method of detecting wear, while Invention III is directed to a liner not to an apparatus for detecting wear in a liner. Invention III can be used with another method and Invention II can be used with another apparatus.

5        Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone conversation with the Examiner, the undersigned provisionally elected, with traverse, to prosecute the invention of Group II, Claims 1-4 and 10-13. Claims 1-4 and Claims 10-13 are herein canceled. Applicants contend that the existing restriction requirement is not proper and additionally contend that the present claims, as amended herein, are not properly subjected to a restriction requirement.

As stated in MPEP §806.04(A), two different combinations are independent only if they “are not disclosed as capable of use together and . . . .” (emphasis added) Thus, if they are disclosed as capable of use together, then they can not be considered independent. Both the description and claims of the present specification clearly teach that the embodiments of the claims in Groups I and II are certainly capable of use together.

The specification as a whole, and especially at page 15, lines 1-8, clearly indicates that Group I and Group II are capable of use together. In fact, a preferred embodiment uses a wire thermocouple to measure both temperature and electrical resistance. This is made expressly clear in Claims 18-25, wherein the placed electrically conductive wire thermocouple is used in both measuring the electrical resistance and in monitoring the temperature. Thus, not only are Groups I and II capable of use together, preferred embodiments have them integrally combined. Accordingly, the restriction requirement of Groups I and II is inappropriate and Applicants respectfully request this restriction requirement be withdrawn.

As stated in MPEP §806.04(B), “where the two inventions are process and apparatus, and the apparatus cannot be used to practice the process or any part thereof, they are independent.” The invention as embodied in the apparatus claims (i.e., Claims 30, 32-34, and 39-42) can be used to practice the processes of the method claims (i.e., Claims 5-9 and 14-25) because the electrically conductive wire thermocouple required by the apparatus claims can be used to perform the step of monitoring the temperature, which is required by all the process claims.

Accordingly, a restriction requirement of the present claims, as herein amended, is inappropriate. Applicants respectfully request that the existing restriction requirement be

withdrawn and that the present claims, as herein amended, not be subject to further restriction requirement.

### **Claim Objections**

The Examiner has objected to Claims 1 and 10, claiming the following informalities:

It is not clear what particular surface applicant means by “outside” surface: the surface close to the device (pump/conduit), or the surface closer to the fluid? Please note, that in the rejection on the merit, the Examiner considers that the surface close to the fluid is the “outside surface”. Also, perhaps, Applicant should show the outside surface in the drawings, in order to clearly describe the invention. Appropriate correction is required.

Applicants respectfully traverse this objection and request that it be withdrawn.

The meaning of the phrase “outside surface” as it is used in all of the present claims, as amended, is clear as presented in the claims and in the present specification. Specifically, Figures 14-17 and the accompanying text on pages 13-14 of the present specification make the meaning of the phrase “outside surface” clear to one of ordinary skill in the art. For example, on page 13 at lines 15-17, the specification states that the “electrically conductive wire can also be placed near the outside surface of the liner to determine when a significant amount of wear has occurred, short of complete wear-through of the liner.” This makes it clear that the outside surface of the liner is further from the fluid rather than closer to the fluid. If the outside surface of the liner were closer to the fluid, the electrically conductive wire would detect wear long before *a significant amount of wear has occurred*. Moreover, Figure 14 and the accompanying text clearly show that the outside surface of the liner is the surface of the liner that is away from the fluid. The text at page 13, lines 20-27 labels the outside surface of the liner as 1404. Figures 14 and 15 clearly show which surface of the liner is the outside surface. Similarly, the text on page 14 at lines 1-6 labels the outside surface of the liner as 1604 and Figures 16 and 17 clearly show which surface of the liner is the outside surface. Please note, that Figures 14-17 also indicate which surface of a liner is the inside surface – identified as 1406 and 1608.

### **Claim Rejections – 36 USC §103**

Claims 1, 4, 10, and 13 were rejected under 35 USC § 103(a) as being unpatentable over U.S. 4,535,326 (Mullins) in view of U.S. 4,646,001 (Baldwin). Claims 1-4 and 10-13 have been

herein canceled. Accordingly, this rejection is now mute and Applicants respectfully request that it be withdrawn.

Claims 2 and 11 were rejected under 35 USC § 103(a) as being unpatentable over Mullins and Baldwin, as applied to claims 1, 4, 10, and 13 in view of U.S. 6,121,617 (Hirayama et al.). Claims 1-4 and 10-13 have been herein canceled. Accordingly, this rejection is now mute and Applicants respectfully request that it be withdrawn.

Claims 3 and 12 were rejected under 35 USC § 103(a) as being unpatentable over Mullins and Baldwin, as applied to claims 1, 4, 10, and 13 and in view of U.S. 6,002,564 (Ohtsuchi). Claims 1-4 and 10-13 have been herein canceled. Accordingly, this rejection is now mute and Applicants respectfully request that it be withdrawn.

#### **Art-Related Discussion**

Applicants contend that the present invention, as currently claimed herein, is patentable over any of the cited references, including the references cited in the newly filed Supplemental Information Disclosure. All of the present claims involve the use of a temperature measuring device to monitor the temperature change to estimate wear in a liner. None of the cited references address this technology at all.

Mullins detects wear in a liner when sufficient wear has occurred to cause the transported, electrically conductive fluid to complete a circuit. Similarly, Baldwin, EP 0058653 (“Gullfiber”), and WO 00/61472 (“Goodyear”) use breakage of electrical lines to detect wear in a liner. There is no teaching or suggestion in Mullins, Baldwin, Gullfiber, or Goodyear of monitoring temperature to estimate the wear in a liner.

U.S. Patent No. 6,004,639 issued to Quigley et al. (“Quigley”) teaches a composite spoolable tube with sensors used for measuring ambient conditions in a well bore. While Quigley may teach the use of temperature measuring devices, the temperature measured is the ambient temperature on the outside of the spoolable tube and there is no teaching of monitoring temperature to estimate wear in a liner. Any changes in temperature detected in Quigley would be due to changes in the temperature detected due to moving the tube in the well bore to a spot having a different temperature, changes in the ambient conditions in the well bore, or moving the tube to a different well bore. The tube in Quigley does not appear to be used to transport an abrasive fluid. Any wear of the tube in Quigley takes place on the exterior due to the

environment in the well bore to which the tube is exposed. Because Quigley does not teach or suggest monitoring temperature to estimate wear in a liner, the present invention is patentable over Quigley.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (989-774-2900) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 50-3019


Respectfully submitted,

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By their Representatives,

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Date December 30, 2004

By   
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 30 day of December, 2004.

Jane E. Sagers

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Name

  
Signature